REMARKS

This is submitted as a full and complete response to the outstanding Office Action. The Examiner has required the Applicant to elect one of the following inventions for further examination: Group I, Claims 56 – 88, drawn to an isolated strain of *Bifidobacterium* strain UCC 35624 and compositions with the strain; Group II, Claims 89 – 92, drawn to an isolated mutant that is made from the strain of *Bifidobacterium* and compositions with the strain; Group III, Claims 93 – 101 and 103 – 134, drawn to an isolated strain belonging to the genus of *Bifidobacterium* and having immunomodulartory activities and compositions with the strain; and Group IV, Claim 102, drawn to an isolated strain belong to the genus of *Bifidobacterium* that is capable of combating effects of inflammatory bowel disease.

Pursuant to the restriction requirement, Applicant elects the invention of Group I, Claims 56 – 88, drawn to an isolated strain of *Bifidobacterium* strain UCC 35624 and compositions with the strain for further examination **with traverse**.

It is respectfully submits that the inventions as grouped by the Examiner are not independent and distinct under 35 U.S.C. 121. They all include the same or similar essential features of *Bifidobacterium* strain that possess immunomodulartory activities. Claims 56 – 88 define an isolated strain of *Bifidobacterium* in term of depository numbers under the Budapest Treaty to define a biological material. Such definition is proper under the patent law and Budapest Treaty. Claims 89 – 92 defines a mutant of the *Bifidobacterium* strain that possess immunomodulartory activities. It is within the knowledge of a person of ordinary skill in that art that a mutant having the same biological activity is not a distinct or independent invention from the original strain. Claims 93 – 101 and 103 – 134 define a *Bifidobacterium* strain in a product by process format and further specify the immunomodulartory functions. They are the same invention as the inventions in Groups I and II defined in a different way. Similarly, Claim 102 also defines a *Bifidobacterium* strain in a product by process format and further specifies the immunomodulartory functions. Applicant respectfully submits that different

definitions of same disclosed invention, varying in breath or scope of definition should not be subject to restriction requirement (see MPEP 806.03).

In addition, Applicant respectfully submits that the parent applications of the present case – USSN 09/903,681, filed July 13, 2001, now abandoned, contains Claims 55 – 74 and 76 – 105 (see attachment), which are similar to the Claims 56 – 134 of the present invention. In the restriction requirement of the parent application, the Examiner took the correct position that Claims 55 – 74 and 76 – 105 are drawn to the same group of invention of *Bifidobacterium* strain and compositions (see page 2 of the attached Office Action dated September 19, 2002, Group I). As stated above, these claims are the same as or very similar to the Claims 56 – 134 of the present invention. Therefore, the Examiner must have erroneously decided in the present invention that these claims define distinct inventions.

Because Claims 56 – 134 of the present invention are not independent and distinct under 35 U.S.C. 121 for the reasons stated above, withdrawal of the restriction requirement is respectfully requested.

An action on the merits of all of the claims and a Notice of Allowance thereof are also respectfully requested.

Respectfully submitted,

JACOBSON HOLMAN PLLC

Date: October 25, 2005
(202) 638-6666
400 Seventh Street, N.W.
Washington, D.C. 20004
Atty. Dkt. No.: P66879US3

By _____
John C. Holman
Registration No. 22,769

Enclosures:
Claims 55 – 129 of Parent Application USSN 09/903,681, filed July 13, 2001
Restriction Requirement dated September 19, 2002 of the Parent Application

9-23-02
TC
9-24-02

Emo

PGC.879US0

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/903,681	07/13/2001	John Kevin Collins	P66879US0	4287

7590 09/19/2002

JACOBSON, PRICE, HOLMAN & STERN
PROFESSIONAL LIMITED LIABILITY COMPANY
400 SEVENTH STREET N.W.
WASHINGTON, DC 20004

RESTRICTION

EXAMINER	
AFREMOVA, VERA	
ART UNIT	PAPER NUMBER
1651	

DATE MAILED: 09/19/2002

6

JACOBSON HOLMAN PLLC
Response Due On Or Before
10 / 19 / 02
Month Day Year

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.	Applicant(s)
09/903,681	Collins et al.
Examiner	**Art Unit**
Vera Afremova	1651

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *Feb 4, 2002*.

2a) ☐ This action is **FINAL.** 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *55-129* is/are pending in the application.

4a) Of the above, claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☐ Claim(s) _____ is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☒ Claims *55-129* are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All b) ☐ Some* c) ☒ None of:

1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____
4) ☐ Interview Summary (PTO-413) Paper No(s). _____
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Claims 55-129 are pending and subject to restriction requirement.

Restriction

Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 55-74 and 76-105, drawn to a strain belonging to *Bifidobacterium* and to compositions comprising the strain belonging to *Bifidobacterium*, classified in class 435, subclass 252.1, for example.

II. Claim 75, drawn to an antimicrobial agent derived from a strain belonging to *Bifidobacterium*, classified in class 424, subclass 115, for example.

III. Claims 106-129, drawn to methods of treating inflammatory diseases in a subject administering a strain belonging to *Bifidobacterium* and/or composition comprising strain belonging to *Bifidobacterium*, classified in class 424, subclass 9.1.

The inventions are distinct, each from the other because of the following reasons:

The invention I and II are distinct because they are directed to distinct products such as microbial strain and a product extracted or an agent derived from a microbial strain.

Inventions of Groups I and III are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product (MPEP §

806.05(h)). In the instant case the product with a strain belonging to *Bifidobacterium* can be used in a materially different process of using that product such as making yogurt, for example: see abstract of US 6,025,008. Or the methods of treating inflammatory diseases in a subject can be practiced with another materially different product such as sialic acid derivatives, for example: see abstract of US 5,834,423.

The inventions of Groups II and III and distinct as claimed and the Group III method does not require the product or agent of the Group II.

The several inventions above are independent and distinct, each from the other. They have acquired a separate status in the art as a separate subject for inventive effect and require independent searches (as indicated by different classification). The search for each of the above inventions is not co-extensive particularly with regard to the literature search. Further, a reference which would anticipate the Invention of Group I would not necessarily anticipate or make obvious the any of the other groups. For these reasons restriction for examination purposes is proper.

Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any

amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(I).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vera Afremova whose telephone number is (703) 308-9351. The examiner can normally be reached on Monday to Friday from 9:00 to 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Wityshyn, can be reached on (703) 308-4743. The fax phone number for this Group is (703) 308-4242.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0196.

Vera Afremova

Art Unit 1651

September 17, 2002.

IRENE MARX
PRIMARY EXAMINER

Notice of References Cited

Application/Control No.	Applicant(s)/Patent Under Reexam	
09/903,681	Collins et al.	
Examiner: Vera Afremova	Art Unit: 1651	Page 1 of 1

U.S. PATENT DOCUMENTS

		Document Number Country Code-Number-Kind Code	Date MM-YYYY[1]	Name	Classification[2]	
	A	[redacted]	11/1998	Koketsu et al.	514	7
	B	6,025,008	2/2000	Akahoshi et al.	426	583
	C					
	D					
	E					
	F					
	G					
	H					
	I					
	J					
	K					
	L					
	M					

FOREIGN PATENT DOCUMENTS

		Document Number Country Code-Number-Kind Code	Date MM-YYYY[1]	Country	Name	Classification[2]	
	N						
	O						
	P						
	Q						
	R						
	S						
	T						

NON-PATENT DOCUMENTS

		Include, as applicable: Author, Title, Date, Publisher, Edition or Volume, Pertinent Pages
	U	
	V	
	W	
	X	

* A copy of this reference is not being furnished with this Office action. See MPEP § 707.05(a). [1] Dates in MM-YYYY format are publication dates. [2] Classifications may be U.S. or foreign.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application: John Kevin COLLINS et al.

Serial No.: 09/903,681 Group Art Unit: 1651

Filed: July 13, 2001 Examiner: NA

For: BIFIDOBACTERIUM IN THE TREATMENT OF INFLAMMATORY DISEASE

PRELIMINARY AMENDMENT

Commissioner of Patents
Washington, D.C. 20231

Dear Sir:

Prior to initial examination, please amend the above-identified application as follows:

IN THE CLAIMS

Please cancel claims 1-54 without prejudice.

Please add the following new claims, claims 55-129:

55. (New) A strain of *Bifidobacterium* isolated from a resected and washed human gastrointestinal tract which is significantly immunomodulatory following oral consumption in humans.

56. (New) The strain of *Bifidobacterium* of claim 55, wherein the strain effects changes in an immunological marker when introduced into a system comprising cells which interact with the immune system and cells of the immune system.

57. (New) The strain of *Bifidobacterium* of claim 56, wherein the cells which interact with the immune system are epithelial cells.

58. (New) The strain of *Bifidobacterium* of claim 56, wherein the immunological marker is a cytokine.

59. (New) The strain of *Bifidobacterium* of claim 58, wherein the cytokine is TNFα.

60. (New) The strain of *Bifidobacterium* of claim 56, wherein the cells which interact with the immune system and the immune system cells are of matched origin.

61. (New) The strain of *Bifidobacterium* of claim 56, wherein the cells which interact with the immune system and the immune system cells are of gastrointestinal, respiratory, or genitourinary origin.

62. (New) The strain of *Bifidobacterium* of claim 56, wherein the cells of the immune system are of gastrointestinal, respiratory, or genitourinary origin.

63. (New) The strain of *Bifidobacterium* of claim 55, wherein the strain is *Bifidobacterium longum infantis*.

64. (New) The strain of *Bifidobacterium* of claim 55, wherein the strain exhibits anti-inflammatory activity following oral consumption in humans.

65. (New) The strain of *Bifidobacterium* of claim 55, wherein the strain is capable of reducing or inhibiting the effects of inflammatory bowel disease in the presence of physiological concentrations of human bile and human gastric juice.

66. (New) The strain of *Bifidobacterium* of claim 65, wherein the effects are determined by measuring a reversal of wasting disease induced in severe combined immunodeficient recipient mice (SCID) which have been administered purified $CD4^{+}$, $CD45RB^{high}$ T cells.

67. (New) The strain of *Bifidobacterium* of claim 55, wherein the strain inhibits the growth of Gram positive bacteria, Gram negative bacteria, or both.

68. (New) The strain of *Bifidobacterium* of claim 55, wherein the strain inhibits the growth of *Staphylcoccus spp.*, *Pseudomonas spp.*, *Coliform spp.*, *Bacillus spp.*, or a combination thereof.

69. (New) The strain of *Bifidobacterium* of claim 55, wherein the strain is *Bifidobacterium longum infantis* UCC35624 or a mutant or a variant thereof.

70. (New) A strain of *Bifidobacterium longum infantis* UCC35624.

71. (New) The strain of *Bifidobacterium* of claim 69, wherein the mutant is a genetically modified mutant.

72. (New) The strain of *Bifidobacterium* of claim 69, wherein the variant is a naturally occurring variant.

73. (New) The strain of *Bifidobacterium* of claim 55, wherein the strain is in the form of viable cells.

74. (New) The strain of *Bifidobacterium* of claim 55, wherein the strain is in the form of non-viable cells.

75. (New) An antimicrobial agent obtained from the strain of *Bifidobacterium* of claim 55 which inhibits the growth of bacteria other than *Bifidobacterium*.

76. (New) A formulation comprising the strain of *Bifidobacterium* of claim 55.

77. (New) The formulation of claim 76, which comprises two or more strains of *Bifidobacterium*.

78. (New) The formulation of claim 76, further comprising a probiotic material.

79. (New) The formulation of claim 76, further comprising a prebiotic material.

80. (New) The formulation of claim 76, further comprising a strain of *Lactobacillus salivarius*.

81. (New) The formulation of claim 80, wherein the strain of *Lactobacillus salivarius* in is the form of viable cells.

82. (New) The formulation of claim 80, wherein the strain of *Lactobacillus salivarius* in is the form of non-viable cells.

83. (New) The formulation of claim 80, wherein the strain of *Lactobacillus salivarius* is isolated from a resected and washed human gastrointestinal tract and is significantly immunomodulatory following oral consumption in humans.

84. (New) The formulation of claim 83, wherein the strain of *Lactobacillus salivarius* inhibits the growth of Gram positive bacteria, Gram negative bacteria, or both.

85. (New) The formulation of claim 84, wherein the strain of *Lactobacillus salivarius* secretes a product having antimicrobial activity into a cell-free supernatant that is produced only by growing cells and is destroyed by proteinase K and pronase E, wherein the inhibition of growth and antimicrobial activity are maintained in the presence of physiological concentrations of human bile and human gastric juice.

86. (New) The formulation of claim 80, wherein the strain of *Lactobacillus salivarius* is *Lactobacillus salivarius* strain UCC 118 or a mutant or a variant thereof.

87. (New) The formulation of claim 86, wherein the mutant is a genetically modified mutant.

88. (New) The formulation of claim 86, wherein the variant is a naturally occurring variant.

89. (New) The formulation of claim 76, further comprising an ingestible carrier.

90. (New) The formulation of claim 89, wherein the ingestible carrier is a pharmaceutically acceptable carrier.

91. (New) The formulation of claim 90, wherein the pharmaceutically acceptable carrier is in the form of a capsule, a tablet, or a powder.

92. (New) The formulation of claim 89, wherein the ingestible carrier is a food product.

93. (New) The formulation of claim 92, wherein the food product is acidified milk, a yogurt, a frozen yogurt, a milk powder, a milk concentrate, a cheese spread, a dressing, or a beverage.

94. (New) The formulation of claim 76, further comprising a protein, a peptide, a lipid, a carbohydrate, a vitamin, a mineral, or a trace element.

95. (New) The formulation of claim 94, wherein the protein or the peptide is rich in glutamine, glutamate, or both.

96. (New) The formulation of claim 76, wherein the *Bifidobacterium* is present at more than 10^6 cfu per gram of the formulation.

97. (New) The formulation of claim 76, further comprising an adjuvant.

98. (New) The formulation of claim 76, further comprising a bacterial component.

99. (New) The formulation of claim 76, further comprising a drug entity.

100. (New) The formulation of claim 76, further comprising a biological compound.

101. (New) The formulation of claim 76, wherein the formulation is suitable for oral administration to a subject.

102. (New) A foodstuff comprising the strain of *Bifidobacterium* of claim 55.

103. (New) A foodstuff comprising the formulation of claim 76.

104. (New) A pharmaceutical composition comprising the *Bifidobacterium* strain of claim 55 and a pharmaceutically acceptable carrier.

105. (New) A pharmaceutical composition comprising the formulation of claim 76 and a pharmaceutically acceptable carrier.

55 106. (New) A method of treating or preventing inflammation or an inflammatory disease in a subject which comprises administering to the subject the *Bifidobacterium* strain ~~of claim 55.~~

107. (New) A method of treating or preventing inflammation or an inflammatory disease in a subject which comprises administering to the subject the formulation of claim 76.

108. (New) The method of claim 106, wherein the inflammation is gastrointestinal inflammation.

109. (New) The method of claim 107, wherein the inflammation is gastrointestinal inflammation.

110. (New) The method of claim 106, wherein the inflammatory disease is inflammatory bowel disease, Crohn's disease, ulcerative colitis, irritable bowel syndrome, pouchitis, or post infection colitis.

111. (New) The method of claim 107, wherein the inflammatory disease is inflammatory bowel disease, Crohn's disease, ulcerative colitis, irritable bowel syndrome, pouchitis, or post infection colitis.

112. (New) The method of claim 106, wherein the inflammatory disease is irritable bowel syndrome.

113. (New) The method of claim 107, wherein the inflammatory disease is irritable bowel syndrome.

114. (New) A method of treating or preventing irritable bowel syndrome in a subject which comprises administering to the subject a strain of *Bifidobacterium* isolated from a resected and washed human gastrointestinal tract which is significantly immunomodulatory following oral consumption in humans.

115. (New) A method of treating or preventing irritable bowel syndrome in a subject which comprises administering to the subject a formulation comprising a strain of *Bifidobacterium* isolated from a resected and washed human gastrointestinal tract which is significantly immunomodulatory following oral consumption in humans.

116. (New) A method of treating or preventing a cancer in a subject which comprises administering to the subject the strain of *Bifidobacterium* of claim 55.

117. (New) A method of treating or preventing a cancer in a subject which comprises administering to the subject the formulation of claim 76.

118. (New) The method of claim 116, wherein the cancer is gastrointestinal cancer or a cancer due to inflammation.

119. (New) The method of claim 117, wherein the cancer is gastrointestinal cancer or a cancer due to inflammation.

120. (New) A method of treating or preventing a systemic disease associated with inflammation in a subject comprising administering to the subject the strain of *Bifidobacterium* of claim 55.

121. (New) A method of treating or preventing a systemic disease associated with inflammation in a subject comprising administering to the subject the formulation of claim 76.

122. (New) The method of claim 120, wherein the systemic disease is rheumatoid arthritis.

123. (New) The method of claim 121, wherein the systemic disease is rheumatoid arthritis.

124. (New) A method of treating or preventing an autoimmune disorder caused by inflammation in a subject comprising administering to the subject the strain of *Bifidobacterium* of claim 55.

125. (New) A method of treating or preventing an autoimmune disorder caused by inflammation in a subject comprising administering to the subject the formulation of claim 76.

126. (New) A method of treating or preventing a diarrhoeal disease in a subject comprising administering to the subject the strain of *Bifidobacterium* of claim 55.

127. (New) A method of treating or preventing a diarrhoeal disease in a subject comprising administering to the subject the formulation of claim 76.

128. (New) The method of claim 126, wherein the diarrhoeal disease is Clostridium difficile associated diarrhoea, Rotavirus associated diarrhoea, or post infective diarrhoea.

129. (New) The method of claim 127, wherein the diarrhoeal disease is Clostridium difficile associated diarrhoea, Rotavirus associated diarrhoea, or post infective diarrhoea.

REMARKS

The foregoing Preliminary Amendment is requested in order to make the claims conform to U.S. patent practice. In particular, claims 1-54 have been canceled without prejudice and claims 55-125 have been added. Support for the new claims may be found in the claims as originally filed. No new statutory matter has been added. Early action on the merits is respectfully requested.

Respectfully submitted,

JACOBSON HOLMAN PLLC

By: _____
John C. Holman
Reg. No. 22,769

400 Seventh Street, N.W.
Washington, D.C. 20004-2201
(202) 638-6666
Atty. Docket: P66879US0
Date: February 4, 2002
JCH/SKS